

NOKIA 3220

RH-37

Transceiver characteristics:

- High-resolution 128 x 128 active matrix color display, up to 65,536 colors
- Tri-band EGSM 900, GSM 1800, and GSM 1900
- Integrated VGA camera
- Cut-out covers
- XHTML browser
- MIDI tones including lights
- Ringing tones including lights
- Configurable light effects for phone events
- Java™ games and applications
- Pop-port™ connector
- Downloadable themes: wallpaper, screensaver, and ringing tone, animated MMS



Transceiver with BL-5B 760mAh Li-Ion battery pack

Talk time	Standby	Note
Up to 3,5h	Up to 350h	Depends on network parameters

SERVICE MANUAL

Service Level 1&2

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TABLE OF CONTENT

	Page
1. INTRODUCTION.....	3
2. GENERAL REPAIR INFORMATION	4
3. PATHFINDER FOR WORKSHOP STAFF	5
4. EXPLODED VIEW AND COMPONENT DISPOSAL	6
5. SPARE PARTS LIST	7
6. SERVICE TOOLS.....	8
7. SW-UPDATE.....	10
8. DISASSEMBLY INSTRUCTIONS (ALSO SEE THE VIDEO CLIPS ON CARE POINT).....	11
9. SPECIAL HINTS FOR ASSEMBLY	14
10. LEGEND FOR QUICK TROUBLE SHOOTER.....	15
11. QUICK TROUBLE SHOOTER PART 1	16
12. QUICK TROUBLE SHOOTER PART 2	17
13. CAMERA GONOGO TEST	18
14. GONOGO TEST	19
15. BATTERY TEST	19
16. FOR FORWARDING OF REPAIRS	20
17. ESD PROTECTION REQUIREMENTS.....	21

CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	04.06.2004	Initial draft
Approval	1.0	08.07.2004	Approval
Approval	2.0	19.07.2004	Approval/ Hints for assembly added

1. INTRODUCTION

The purpose of this document is to help Nokia service levels 1 and 2 workshop technicians to carry out service to Nokia products. This Service Manual is to be used **only** by authorized Nokia service suppliers, and the content of it is **confidential**. Please note that Nokia provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist.

If you find any errors or if you have further suggestions, please notify Nokia using the address below:

<mailto:cc-ts-rc.documentation@nokia.com>

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.
4. Use only approved components as specified in the parts list.
5. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment.
Ensure all cables and wires are repositioned correctly.



Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on Nokia Partner Web Site. Also see ESD Protection Requirements in this Service Manual.

2. GENERAL REPAIR INFORMATION

IN THIS SECTION THE TECHNICIAN WILL GET SOME GENERAL HINTS HOW TO CARRY OUT REPAIRS:

- To familiarize oneself with Nokia product read the tutorials or user guide on www.nokia.com -->Support--> Phones Support, by selecting the Phone Model.
- Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a film to avoid dust and scratches.
- When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
- Mechanical parts (except shielding lids), which didn't repair the failure, can be reused, if they are not soldered.
- When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
- Use always original Nokia spare parts.
- Check the soldering joints of the parts which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
- Remove redundant soldering flux after repair.
- Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on Nokia Partner Web Site).
- Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
- When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
- Please be aware that some malfunctions could be software related and solved by an update.

There are several documents available on PWS/CarePoint, which have to be followed:

First, take care for the latest content pages of Service Bulletins, which are always available for each folder on Nokia Partner Web Site. This is also important to recognize, if existing documents have become invalid.

The service level indicator at the bottom of each document tells the appropriate destination.

Downloads > Support Library >

1. Instructions
 2. General Service Bulletins
 3. Product related documents
 4. Spare Part Service Bulletins
 5. Service Tools Service Bulletins
 6. Common Softwares Service Bulletins
- etc,...

Use General SB-217 as a reference or overview.

Please also check Nokia Partner Web Site (PWS) for latest news and files on a regular basis.

3. PATHFINDER FOR WORKSHOP STAFF

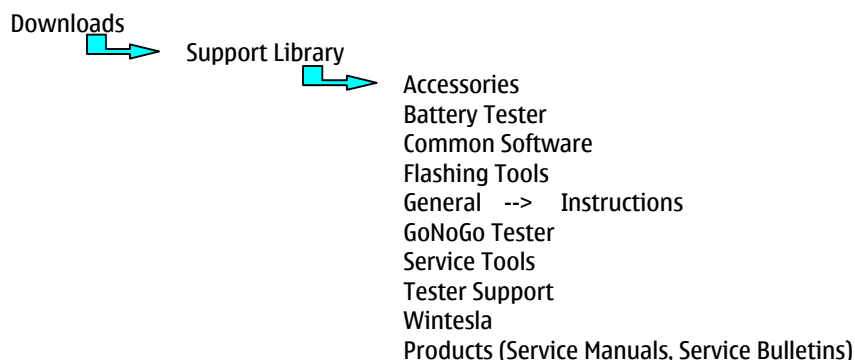
In addition to the information in this Service Manual, there are several instructions and information, which have to be followed.

Main documentation database is Nokia [Partner Website](#), which refers also to [Nokia Care Point](#) with the purpose of serving different multimedia content, like video clips or interactive tutorials.

Nokia Partner Web Site	Nokia Care Point (access through Partner Web Site)
<p>Nokia Partner Web Site for EMEA region is the most important document database for all service suppliers (level 1-4). All service relevant information like e.g. Service Manuals, Service Bulletins or general instructions are available. Content is restricted according your access level. To be kept up-to-date also concerning newest software updates, a daily check of "latest updates in support library" is needed.</p>	<p>Nokia Care Point is repair support and training channel for Nokia service suppliers (mainly for service levels 1 and 2). By providing visual and easy to learn support and training material, such as illustrative repair videos, troubleshooting with pictures, product information and general repair information, Nokia Care Point offers user-friendly channel for service suppliers to learn technical issues.</p>
	

It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see **"Latest Updates"** in support Library). Every new information has to be processed and implemented as soon as possible.

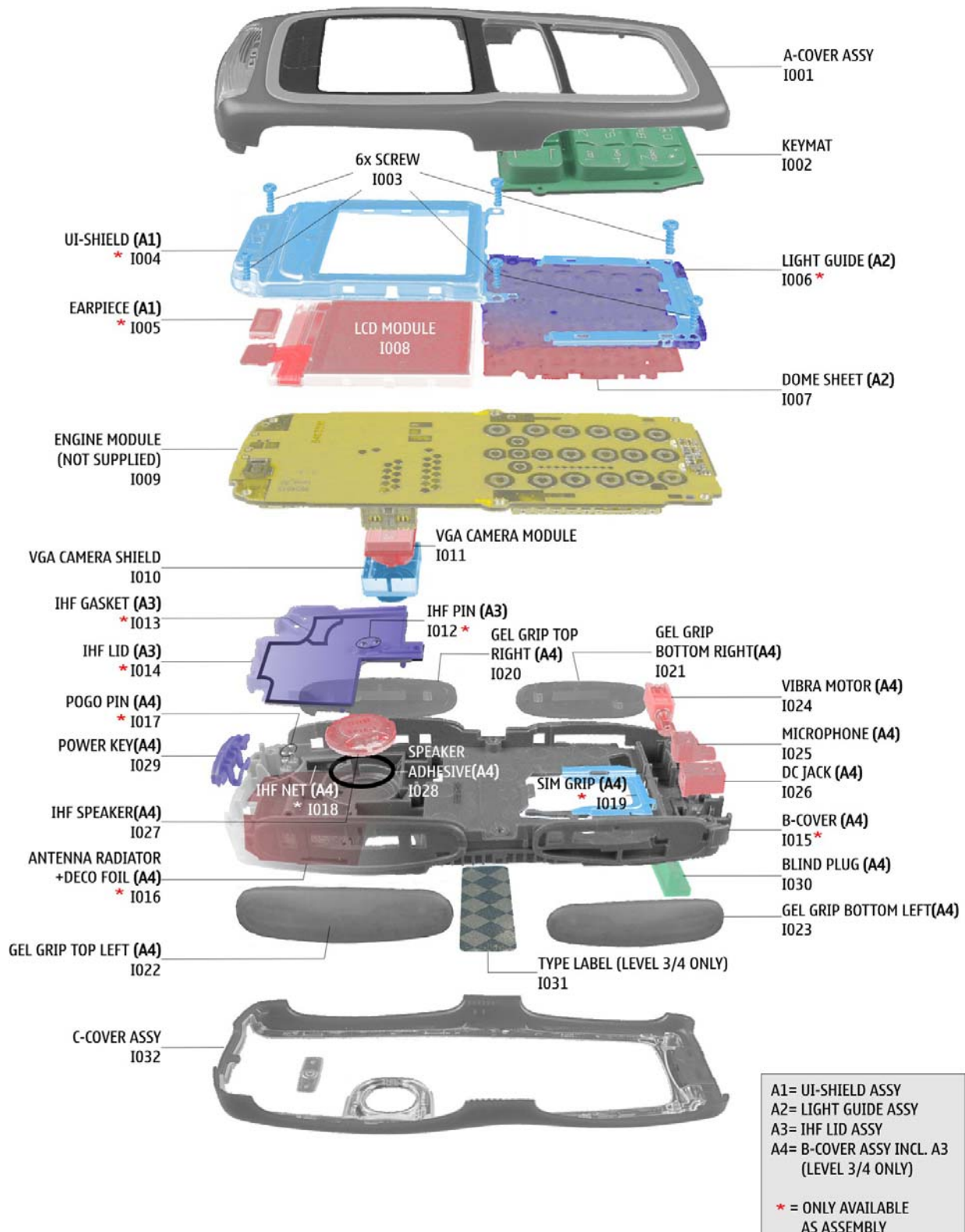
When logged into PWS you can also find needed information in different folder like:



To spare server bandwidth it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

4. EXPLODED VIEW AND COMPONENT DISPOSAL

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on PWS.












5. SPARE PARTS LIST

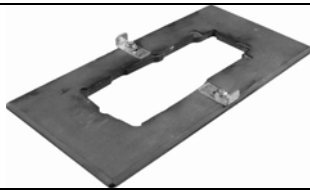
Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from PWS!

This will ensure, that you are using up-to-date order codes only.

Therefore Service Bulletins have to be checked from PWS on daily basis.

6. SERVICE TOOLS

	<p>FLS-4S incl. ACF-8, Driver and User Guide is a dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p>ACF-8 Universal Power Supply is used to power FLS-4S.</p>
	<p>Internal Battery BL-5B Inserted under the back cover, this Li-Ion 850 mAh battery provides power in a lightweight package.</p>
	<p>Travel Charger ACP-8E Travel Charger ACP-8X Small and lightweight charger for fast charging of your phone battery.</p>
	<p>XCS-1 Service Cable is used to connect FLS-4S to SF-17.</p>
	<p>Headset HS-5 An easy and convenient handsfree solution with remote control.</p>
	<p>SS-42 Camera Removal Tool.</p>
	<p>SF-17 POS Flash Adapter is used in POS (Point of Sales) environment for software updating. It provides controlled supply voltage and necessary connections between the phone and the Flash Device. It substitutes for the phone's standard battery during the software update.</p>
	<p>Test Pins for Flash Adapter SF-17</p>



RJ-17

Soldering Jig



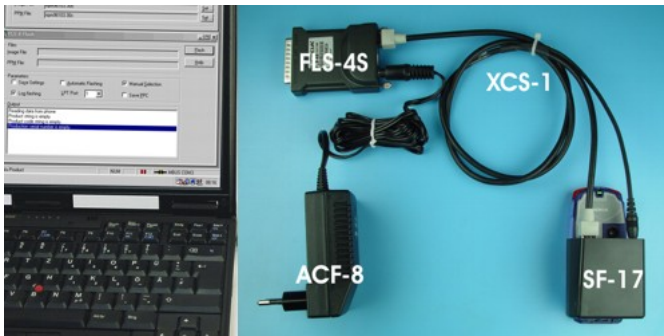
0772040 NMP Standard Toolkit

- Nokia opening tool SRT-6 Nokia No. 0770431
- Tonichi torque driver Nokia No. 6901525
- Hoya micro fibre cloth MX304
- Dastex gloves S, M, XL
- Artilux goggles AH166
- Wera bit T5 867/4TX 5x50
- Wera bit T6 867/4TX 6x50
- Wera bit T6 PLUS® 867/4TX 6IP
- Facom side cutter 416E
- Facom T5 driver SP.14032
- Facom T6 driver SP.14033
- Facom slot screwdriver AEF. 2x35.E
- Wetec tweezers 7abb SA-ESD
- Wetec tweezers 22 SA-ESD
- Wetec tweezers 13 SA-SMD ESD
- Wetec tweezers PSF SA-ESD
- Wetec ESD brush E1211
- Kaiser [Fototechnik](#) airbrush 6315
- Wetec dental tool DEM83266/0
- RS [Components](#) Scissors 323-5732

7. SW-UPDATE

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on Nokia [Partner Web Site](#).

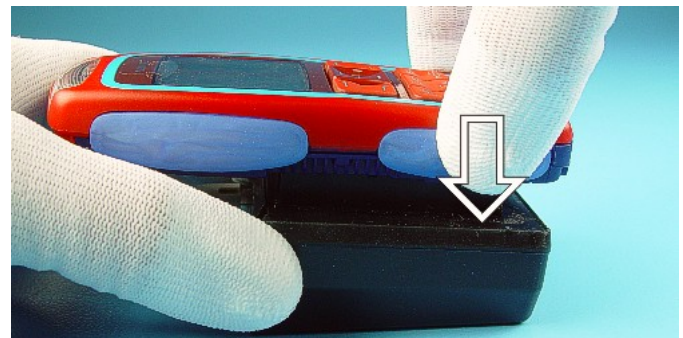
Flash Concept – (Point of Sales)



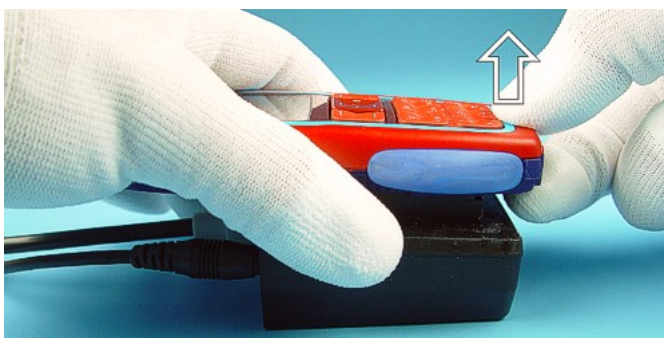
It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.



Insert the Flash Adapter SF-17 like a battery, start at the Battery Connector side.



Now, push down the bottom side of the phone, do not use too much force.

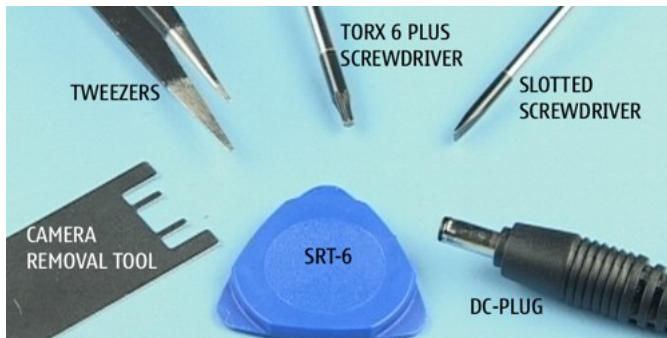


When removing the phone, always start from the bottom side of the unit.



Take away the unit now.

8. DISASSEMBLY INSTRUCTIONS (ALSO SEE THE VIDEO CLIPS ON CARE POINT)



Needed tools for disassembly



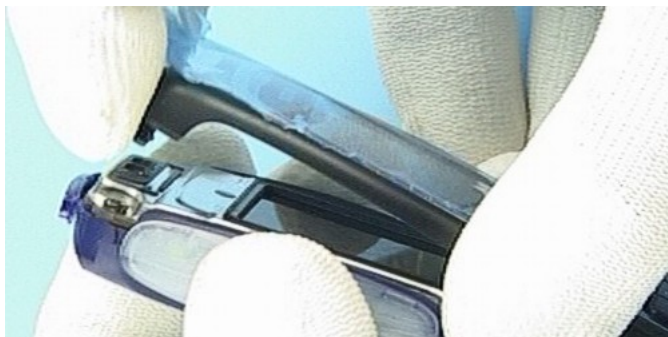
Protect the Window with a plastic film.



Press the C-Cover Lock before pulling the C-Cover.



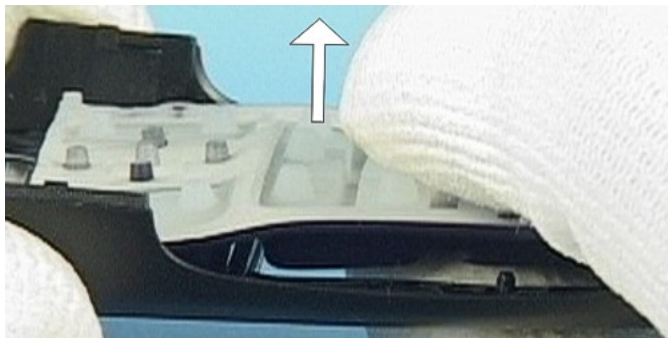
Protect the Camera Window with a plastic film.



Lift the topside of the A-Cover and then remove it carefully.



Also protect the inner side of A-Cover with a plastic film.



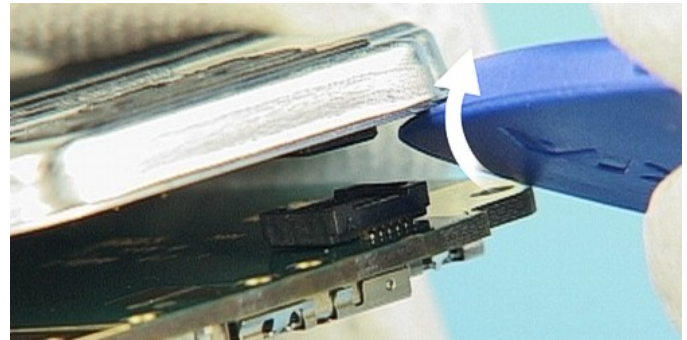
Remove Keymat.



Unscrew the six Torx Plus® size 6 screws. For assembly, the reverse order and a Torx Plus® driver with a torque of 28Ncm has to be used.



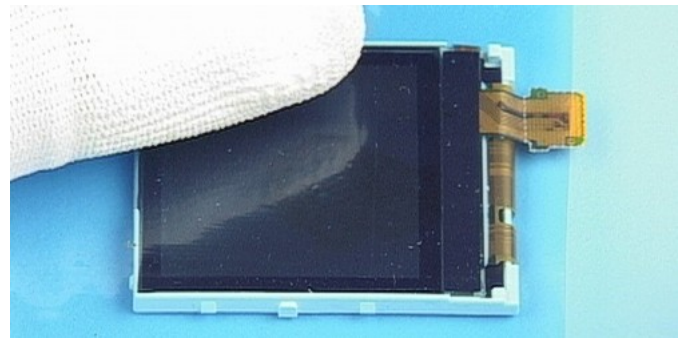
Separate the Modules from B-Cover.



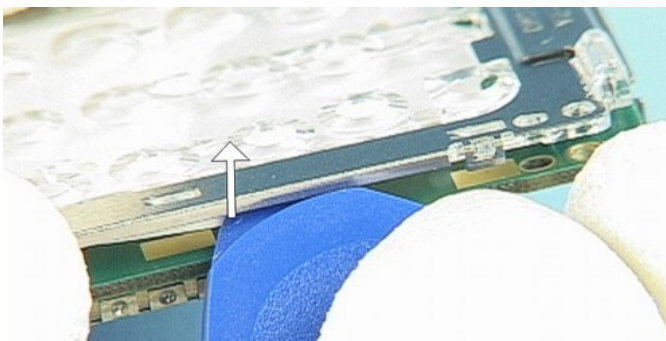
Open the LCD Connector with SRT-6 carefully.



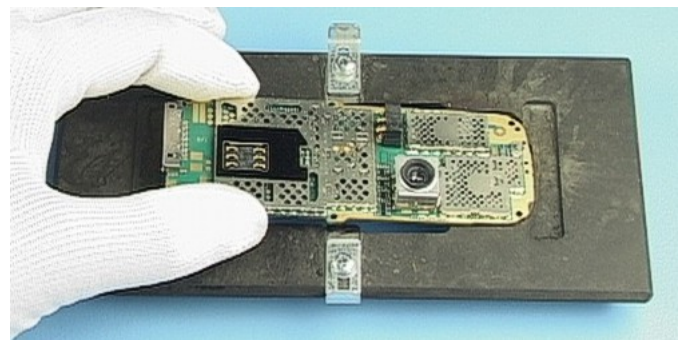
Use SRT-6 to separate the LCD-Module from UI-Shield.



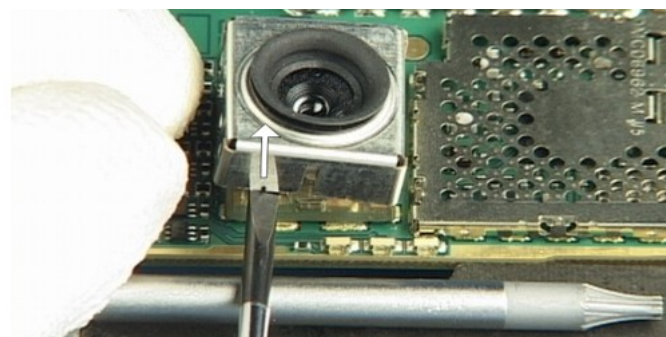
Protect the LCD-Module with a plastic film.



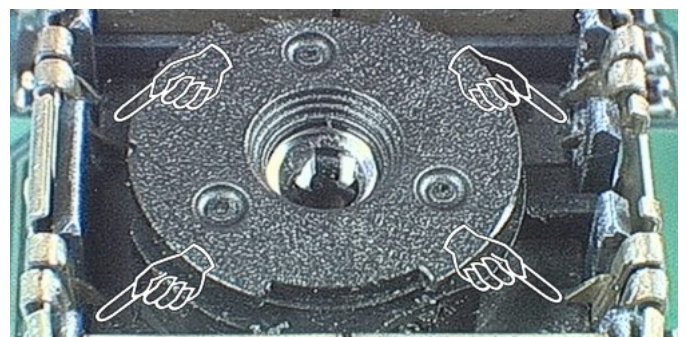
When changing the Light Guide Assy use SRT-6 as a lever. Keep in mind that Dome Sheet is glued to the Engine Module.



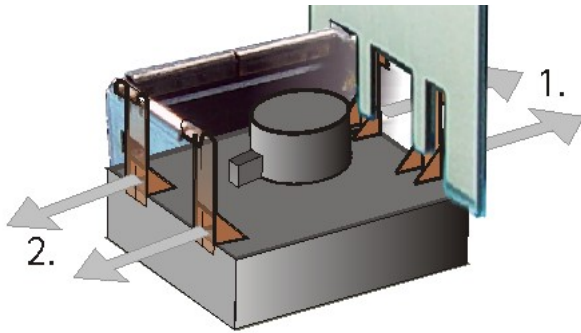
Put the Engine Module into the Soldering Jig



Use a slotted screwdriver as a lever to open the Camera Shield.



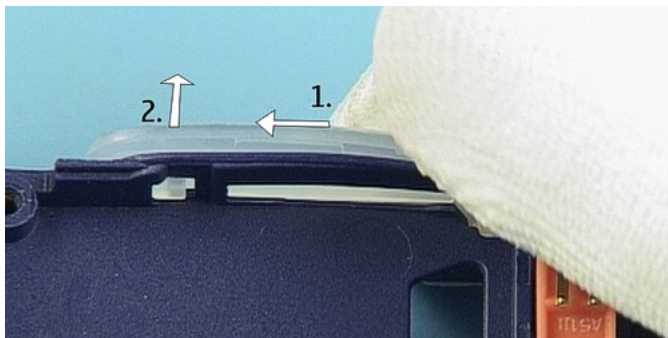
Camera Module is attached with four double snaps into its guidance.



Place the removal tool as shown in the picture and unlock the snaps on both sides. Note releasing order.



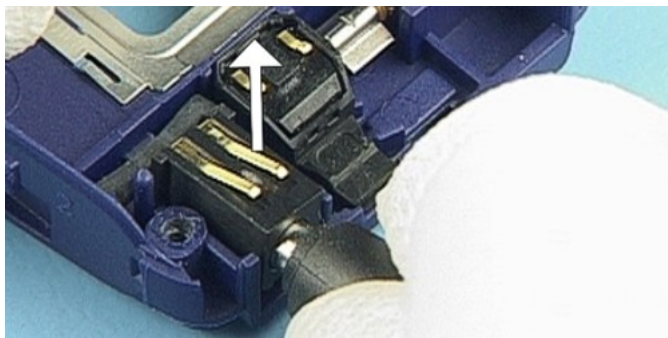
Remove the Camera Module with the removal tool as shown in the picture.



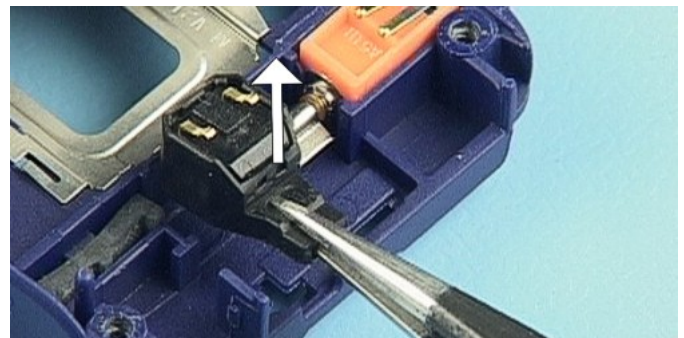
All Gel Grips are attached to the B-Cover with hooks. Slide the Gel Grip as shown in the picture to unlock the hooks.



The numeric characters of the Grips are for place identification only.



Use the DC-Plug to remove the DC-Connector.



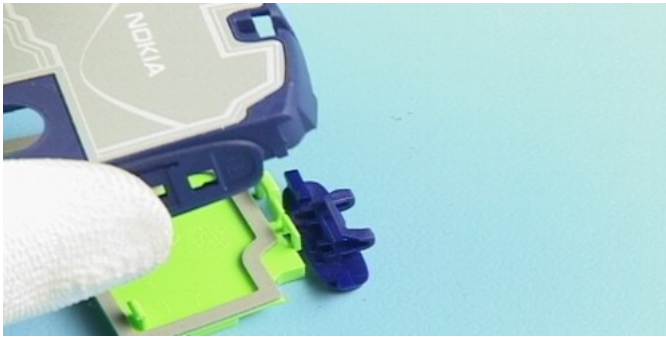
Tweezers can be used to remove the Microphone.



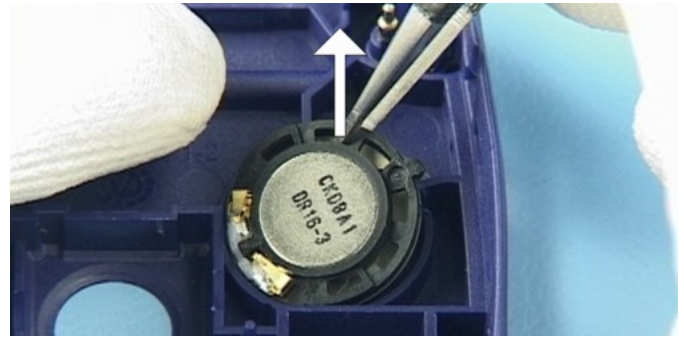
Tweezers can also be used to remove the Vibra Motor.



Push down the clip of the IHF Lid Assy to release the Lid and the Power Key.



The parts drop out easily.



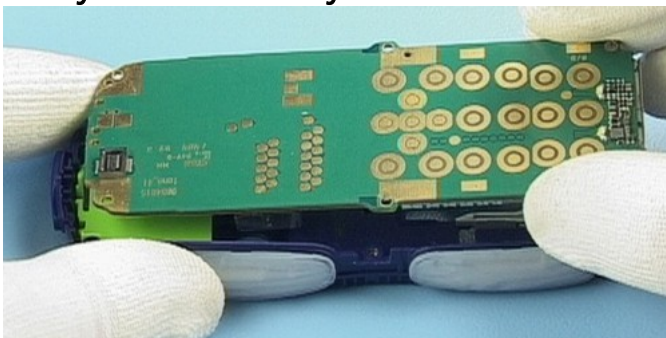
IHF Speaker can be removed with tweezers. Note the guiding pin while re-assembling.



Push out the Blind Plug by using a screwdriver.

9. SPECIAL HINTS FOR ASSEMBLY

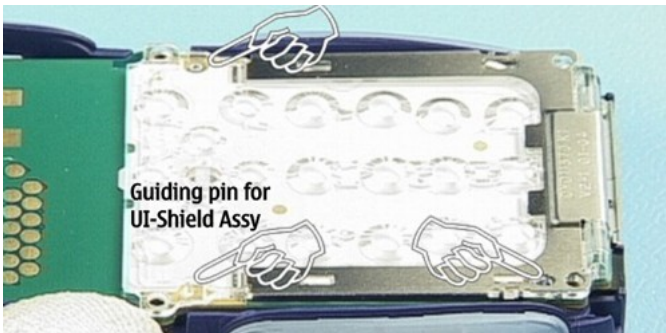
Follow the instruction below when assembling the unit to avoid wrong positioning of Light Guide Assy and UI-Shield Assy.



First lay down the B-Cover Assy then put in the Engine Module. Use the two guiding pins for positioning.



Before replacing the Light guide Assy remove the protection foil.



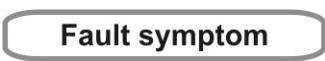





Note the guiding pins when attaching the Light Guide Assy.



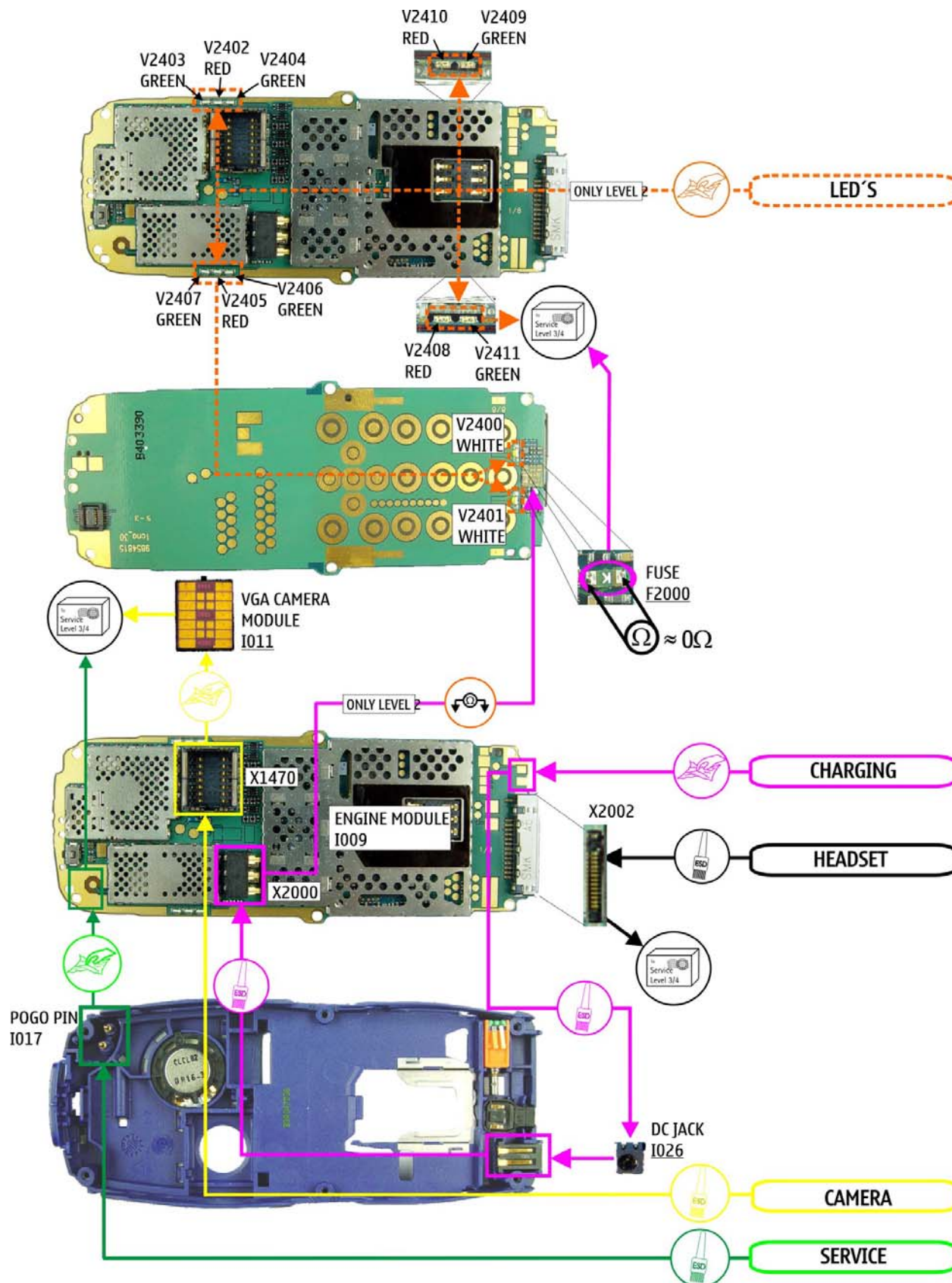
The last guiding pin is used for positioning the UI-Shield Assy.

10. LEGEND FOR QUICK TROUBLE SHOOTER

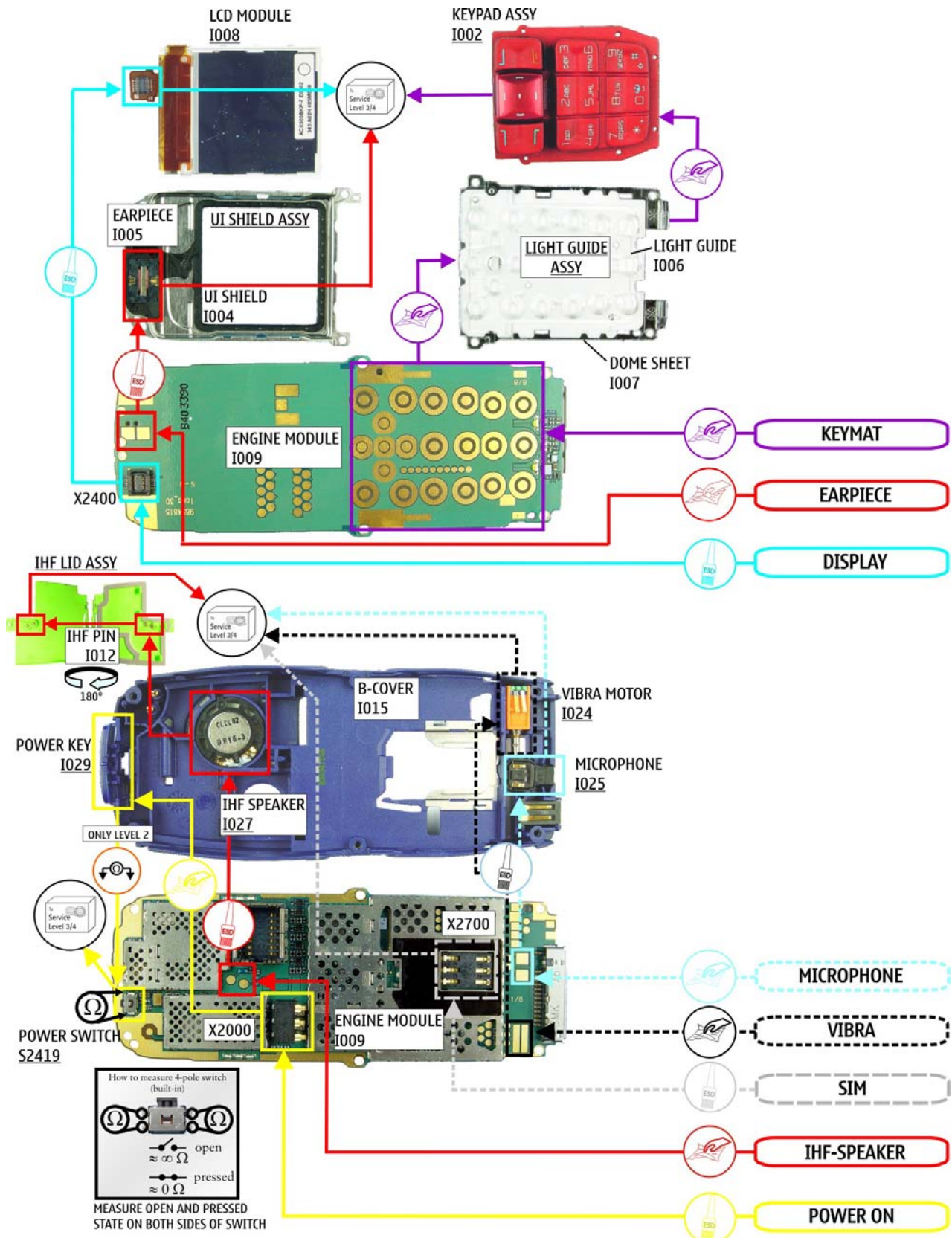
This legend is valid for all parts of the **Quick Trouble Shooter**

<p>Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward. <i>Only underlined components (e.g. <u>1002</u>) can be changed.</i></p>	
	<p>The start point of repair activities regarding the appeared fault symptoms.</p>
	<p>Follow the arrows step by step</p>
	<p>Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean if necessary.</p>
	<p>Measure component for electrical functionality and change, if needed. (Level 2 only)</p>
	<p>Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean with ESD brush only, if necessary.</p>
	<p>No more actions possible send product to the appropriate service supplier with higher service level.</p>

11. QUICK TROUBLE SHOOTER PART 1






12. QUICK TROUBLE SHOOTER PART 2



13. CAMERA GONOGO TEST

Before starting the GoNoGo test, check that camera window is clean. If not, clean the window with cloth.

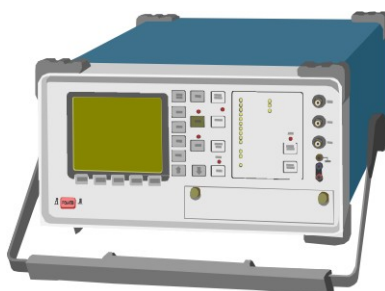


- From Home Menu, press the  Menu key
- To take a picture press the Menu  key (Capture)
- Test was successful, if the Image appears on your Display. The camera is ok
- This Image will be saved to Gallery into the Photos folder automatically
- Select **Options**
- Select  **Delete**
- Select **Yes**
- Select **EXIT** for Home Menu
- If the test is failed see Quick Trouble Shooter

14. GONOGO TEST

After the optical check a GoNoGo test has to be carried out if the unit has been unscrewed to guarantee the functionality of the phone.

Please refer to the actual information on Partner Web Site and Nokia Care Point. When using delivered tester support files, take care of the right setup according to the tester type and product type. Please refer to "Recommended Service Equipment" on Nokia Partner Web Site.



Mobile Phone Tester

15. BATTERY TEST

A battery tester lets you test the capacity of Nokia batteries. Please refer to the actual information on Partner Web Site.



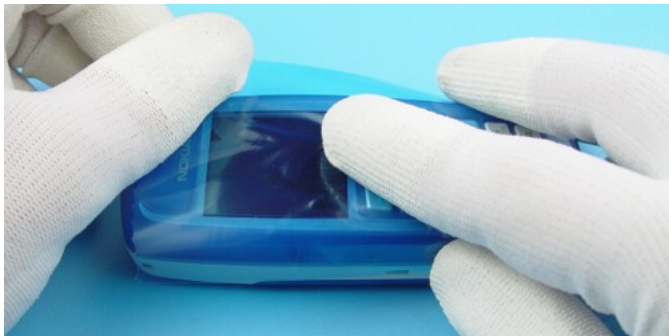
<http://www.astratec.co.uk/>



<http://www.cadex.com/>

16. FOR FORWARDING OF REPAIRS

When it is necessary to forward of repairs to appropriate service supplier with higher service level we recommend using the offered swap phone cartons as described in Spare Parts SB-004.



Always Protect the window with a protection film.



Put the unit under the stretch film.



Add repair documentation e.g. filled-in service note into the swap carton.



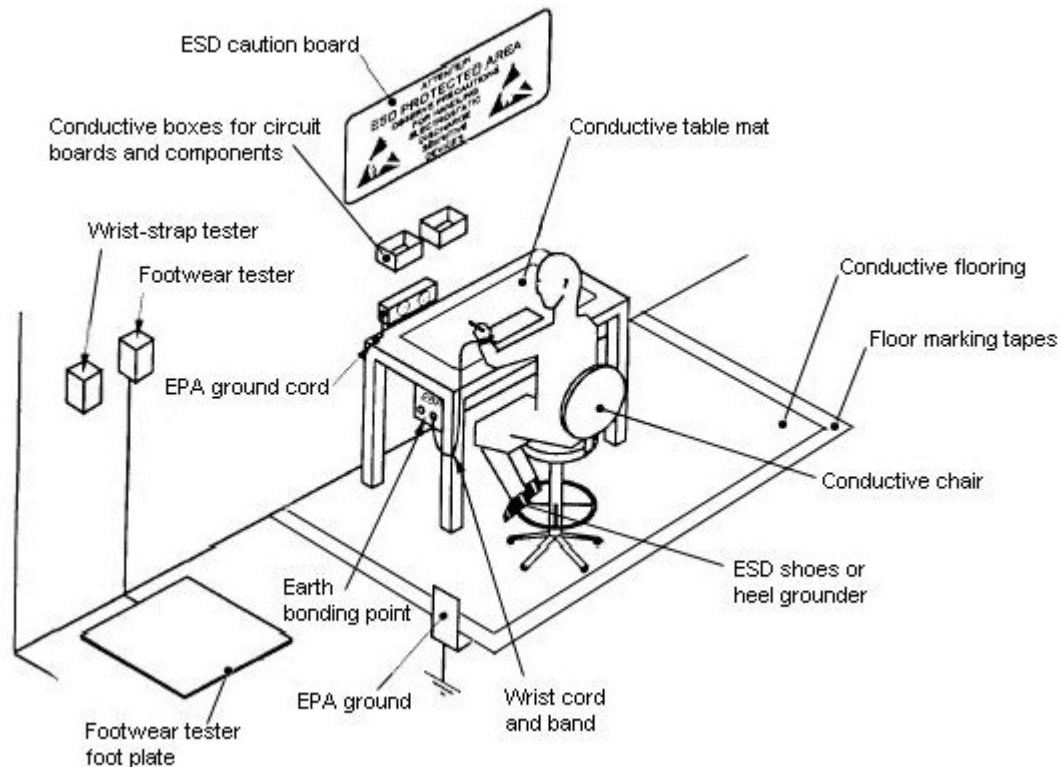
Fold the swap carton as shown in Spare Parts SB-004.



There are two different sizes of swap cartons for common mobile phones.

17. ESD PROTECTION REQUIREMENTS

Please refer to the Partner Web Site document
[Service Supplier Requirements](#) in folder General instructions.



USE Conductive bags and boxes
USE ESD compatible service tools
USE Conductive wastebaskets
USE ESD gloves when handling PWBs/PCBs
USE Cleaning material without changing el. Characteristics
USE Grounded service equipment, i.e. soldering station
USE ESD clothes such as coat or frock

NO Smoking
NO Drinking
NO Eating
NO Dust
NO Useless Items
NO Normal pressured air for cleaning modules/displays



The video covers general issues concerning Electro-Static Discharge (ESD)
source: Nokia Care Point